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RADIUM MONITORING NETWORK

DATA RELEASE NUMBER 5

PUBLIC HEALTH SERVICE, DENVER, COLORADO

JULY 1964

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RADIUM MONITORING NETWORK

DATA RELEASE NO. 5

U. S. Department of Health, Education, and Welfare
Public Health Service
Bureau of State Services
Division of Water Supply and Pollution Control
Region VIII
Denver, Colorado

Colorado River Basin Water Quality Control Project

July 1964

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15. Supplementary Notes

Report on Colorado River Basin Water Quality Control Project.

16. Abstracts

This fifth data release report contains available radium-226 and uranium results supplementing the data contained in previous releases dated October 1962, January 1963, July 1963, and January 1964. The data indicate evidence of uranium mining and milling from analysis of composite water samples at stations of the Radium Monitoring Network established by the Colorado River Basin Water Quality Control Project. The network is a surveillance system consisting of continuous surface water sampling at 26 significant locations throughout the basin. It assays the radiological content of river water over the entire basin. Tabular data are given.

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17b. Identifiers/Open-Ended Terms

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*Uranium
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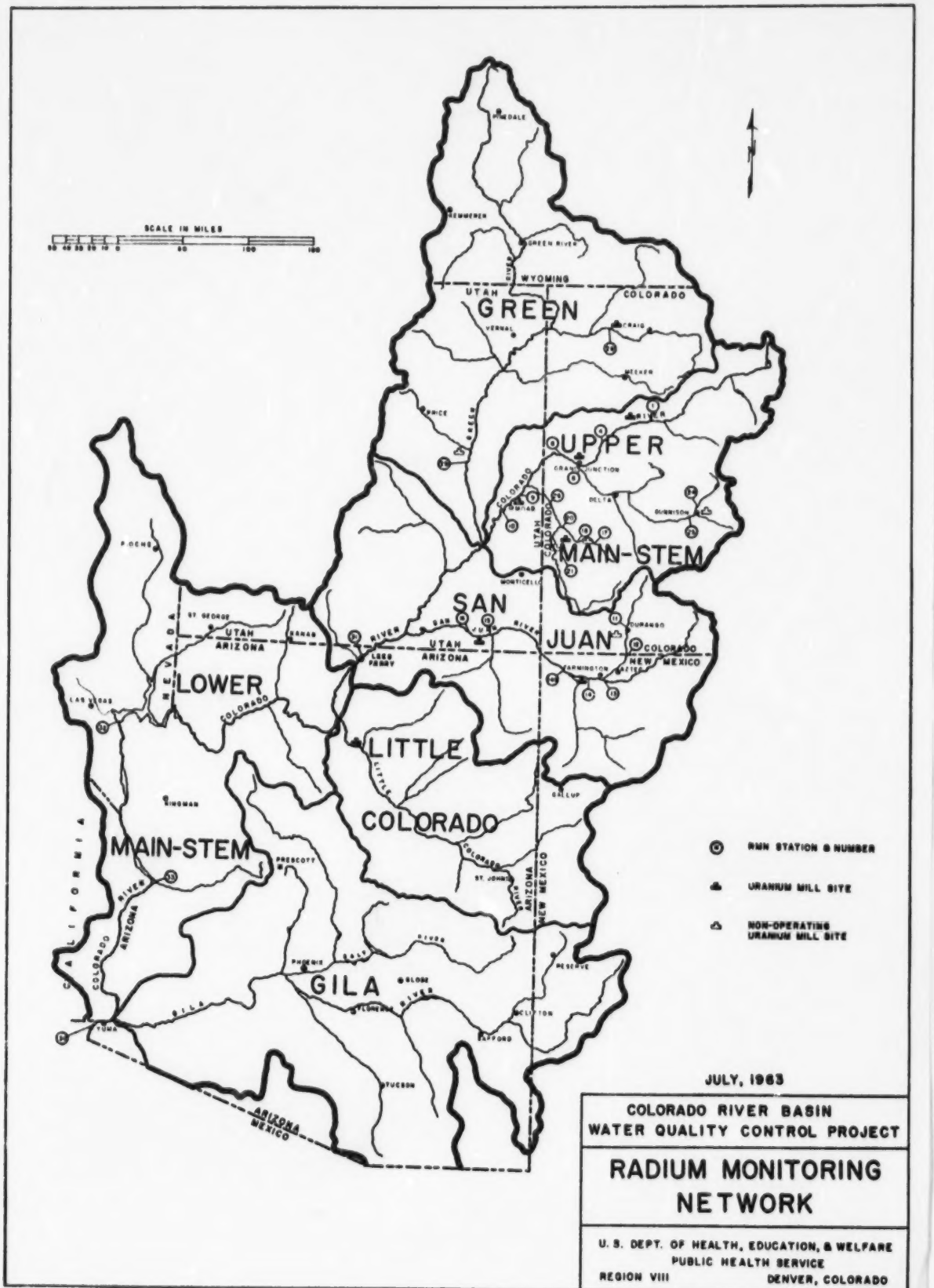

GPO 843-318

FIGURE 1

COLORADO RIVER BASIN WATER QUALITY CONTROL PROJECT

RADIUM MONITORING NETWORK

INTRODUCTION

This is the fifth release of data collected through the Radium Monitoring Network maintained by the Colorado River Basin Water Quality Control Project of the Division of Water Supply and Pollution Control, U. S. Public Health Service. This release is to supplement data given in four previous releases dated October 1962, January 1963, July 1963, and January 1964.

The Radium Monitoring Network is a surveillance system consisting of twenty-six surface water sampling stations located throughout the Colorado River Basin. The purpose of this network is to assay the radiological content of river waters in the Basin on a continuous basis. The network was established after its need was recognized at a 1957 conference on uranium milling wastes attended by representatives of the States of Arizona, Colorado, New Mexico, and Utah, and the U. S. Public Health Service.

Depending on individual station parameters, Radium Monitoring Network (RMN) samples are collected as either daily or weekly "grab" samples, or by automatic samplers collecting 21 ml every hour. Radiochemical determinations are then conducted on the filtered water from weekly or monthly composites of the samples collected.

The Appendix contains the radium-226 and uranium data appended to that presented in the four previous data releases. Strontium-90 polonium-210, lead-210, and thorium results are given in Table II. These latter determinations were added at several stations during the past year to provide a more comprehensive picture of radiological contaminants in Colorado River Basin waters.

DISCUSSION

Radium-226 concentration data from the five data releases gives comparisons shown below while individual station averages are given in Table I. Background stations are those upstream from uranium mining and milling operations or from natural contamination sources such as the radium bearing mineral springs near Glenwood Springs, Colorado.

	Background Stations	Non-background Stations	All Stations
Average concentration	0.05 μμg/l	0.41 μμg/l	0.37 μμg/l
Range	0.00-0.16 μμg/l	0.01-7.2 μμg/l	0.00-7.6 μμg/l
Number of samples	115	872	987

No significant changes in monthly average concentrations were noted at any station during the reporting period, except at the stations below Uravan, Colorado and at Gateway, Colorado. These two stations are downstream from the Uravan uranium processing mill and showed an increase in average concentration levels during the latter months of 1963 followed by a return to normal levels. The highest monthly average concentration recorded at either station did not exceed the recommended drinking water yearly average limit of 3 μμg/l (1).

The concentration fluctuations noted are thought to be attributed to short term releases of uranium mill effluents during the Uravan mill's efforts to stabilize their new effluent treatment facilities. Future data is expected to show a significant reduction in the radiological concentrations in river water in this area.

The overall average radium-226 concentrations below Uravan and at Gateway are 1.1 and 1.2 μμg/liter respectively. All other stations exhibit overall average concentrations well below the suggested one μμg/liter desirable maximum for Colorado River Basin surface waters (2).

Uranium

Combined uranium concentration data from the five data releases provides the summary given below and individual station averages are listed in Table I. Concentrations at all stations continue to range well below recommended limits (3).

	Background Stations	Non-background Stations	All Stations
Average concentration	1.6 μg/l	11 μg/l	10 μg/l
Range	0.0-8.3 μg/l	0.0-150 μg/l	0.0-150 μg/l
Number of samples	70	603	673

Strontium-90, Polonium-210, Lead-210, Thorium

The results of analyses for these radioisotopes in samples collected at several trial locations during the past year are presented in Table II.

Strontium-90 results show a definite concentration increase from an upstream station to a downstream station but do not indicate any average levels above the recommended 10 μμc/liter limit for drinking water (1).

Polonium-210, lead-210, and thorium results indicate concentration levels well below the allowable limits suggested by the International Commission on Radiological Protection (3).

TABLE I

RADIUM-226 AND URANIUM IN SURFACE WATERS OF THE COLORADO RIVER BASIN

Station Number and Location	Radium-226 Avg.[a] μμg/l	Radium-226 Range μμg/l	Radium-226 No. of Analysis	Uranium Avg.[a] μg/l	Uranium Range μg/l	Uranium No. of Analysis
Animas River						
#11 above Durango, Colo.	0.06	0.04-0.11	25	1.2	0.2- 2.5	19
#12 Colorado-New Mexico State Line	0.32	0.09-1.5	79	4.4	0.4- 18	37
Colorado River						
#1 at Silt, Colorado	0.20	0.04-0.39	31	2.9	0.1- 4.4	17
#4 at DeBeque, Colorado	0.20	0.05-0.44	32	3.7	0.4- 6.5	17
#6 at Fruita, Colorado	0.19	0.09-0.26	26	9.7	4.0- 14	17
#9 above Moab, Utah	0.27	0.10-0.50	60	11	4.1- 17	47
#10 below Moab, Utah	0.46	0.18-7.2	56	12	3.9- 22	43
#31 at Page, Arizona	0.26	0.16-0.29	10	9.1	7.1- 13	10
#32 Lake Mead	0.33	0.28-0.40	11	7.9	5.6- 10	12
#33 Lake Havasu	0.35	0.26-0.40	14	8.3	5.9- 11	14
#30 at Yuma, Arizona	0.16	0.06-0.32	22	8.2	5.9- 11	17
Dolores River						
#21 at Bedrock, Colorado	0.52	0.03-1.4	30	14	0.9- 35	17
#26 at Gateway, Colorado	1.2	0.04-3.2	69	9.7	0.1- 35	46
Green River						
#28 below Maybell, Colorado	0.09	0.03-0.15	21	2.6	0.6- 8.0	17
#29 below Green River, Utah	0.09	0.05-0.15	21	5.3	1.6- 7.6	18
Gunnison River						
#24 above Gunnison, Colo.	0.04	0.02-0.08	27	1.1	0.0- 2.6	17
#25 below Gunnison, Colo.	0.04	0.01-0.09	30	2.0	0.6- 3.6	17
#5 at Grand Junction, Colo.	0.09	0.01-0.29	26	11	0.7- 17	17
San Juan River						
#13 above Farmington, N.M.	0.07	0.03-0.16	18	3.0	0.0- 8.3	17
#14 below Farmington, N.M.	0.11	0.04-0.21	18	4.3	1.9- 9.0	17
#14S below Shiprock, N.M.	0.12	0.04-0.20	44	14	2.3- 21	41
#15 above Mexican Hat, Utah	0.14	0.06-0.26	30	8.1	4.5- 13	17
#16 below Mexican Hat, Utah	0.18	0.03-0.84	62	9.2	0.8- 17	44
San Miguel River						
#17 above Naturita, Colo.	0.04	0.00-0.09	45	1.3	0.0- 3.9	17
#18 above Uravan, Colo.	0.25	0.05-1.24	78	7.7	0.9- 63	47
#20 below Uravan, Colo.	1.1	0.11-5.6	102	28	0.0-150	74

a/ Average concentration obtained from all data presented in this and previous data releases.

TABLE II

STRONTIUM-90, POLONIUM-210, LEAD-210, AND THORIUM
IN SURFACE WATERS OF THE COLORADO RIVER BASIN

Station Number & Location		Collection Period	Concentration μμc/liter
		Strontium-90	
#1	Colorado River at Silt, Colorado	July 1963	1.6
		August	2.1
		September	1.2
		October	1.1
		November	0.9
		December	1.8
#9	Colorado River above Moab, Utah	July 1963	6.8
		August	9.8
		September	6.9
		October	4.8
		November	2.5
		December	0.8
		Polonium-210	
#4	Colorado River at DeBeque, Colorado	October 1963	0.07
		November	0.00
		December	0.05
		January 1964	0.01
		February	0.06
#20	San Miguel River below Uravan, Colorado	October 1963	0.27
		November	6.8
		December	0.05
		January 1964	0.01
		February	0.06
#16	San Juan River below Mexican Hat, Utah	October 1963	0.00
		November	0.10
		December	0.11
		January 1964	0.00
		February	0.09
		Lead-210	
#4	Colorado River at DeBeque, Colorado	October 1963	< 1
		November	< 1
		December	< 1
		January 1964	< 1
		February	< 1

TABLE II (Continued)

		Lead-210	
#20	San Miguel River below Uravan, Colo.	October 1963	< 1
		November	< 1
		December	< 1
		January 1964	< 1
		February	< 1
#16	San Juan River below Mexican Hat, Utah	October 1963	< 1
		November	< 1
		December	< 1
		January 1964	< 1
		February	< 1
		Thorium	
#26	Dolores River at Gateway, Colorado	July 1963	1.1
		August	0.4
		September	1.1
		October	1.6
		November	2.2
		December	2.5
		January 1964	2.4
		February	0.5
#20	San Miguel River below Uravan, Colorado	July 1963	0.2
		August	1.6
		September	3.7
		October	25
		November	2.4
		December	2.1
		January 1964	3.9
		February	2.6
#16	San Juan River below Mexican Hat, Utah	October 1963	0.5
		November	1.3
		December	1.5
		January 1964	0.0
		February	2.5

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2. Transcript, Third Session Conference on Pollution of the Interstate Waters of the Colorado River and Its Tributaries, May 1962. Department of Health, Eduction, and Welfare, Region VIII, Denver, Colorado.

3. International Committee on Radiological Protection: Report of Committee II on Permissible Dose for Internal Radiation, 1959. Pergammon Press, Inc., New York, New York.

APPENDIX

RMN Station 1: Colorado River at Silt, Colorado
Started: November 25, 1961
Type: Automatic Pump-Timer

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
June 29-August 3	0.20	2.3
August 3-August 31	0.20	3.9
August 31-September 28	0.29	2.9
September 28-November 2	0.25	3.0
November 2-December 7	0.29	3.4
December 7-December 28	0.34	4.4
1964		
December 28-February 1	0.35	3.4
February 1-February 29	0.39	2.7

RMN Station 4: Colorado River above DeBeque, Colorado
Started: November 12, 1961
Type: Automatic Pump-Timer

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
June 29-August 3	0.24	2.5
August 3-August 31	0.16	3.3
August 31-September 28	0.15	3.6
September 28-November 2	0.21	4.2
November 2-December 7	0.24	4.2
December 7-December 28	0.30	5.5
1964		
December 28-February 1	0.26	4.5
February 1-February 29	0.31	4.5

RMN Station 5: Gunnison River above Grand Junction, Colorado
Started: April 16, 1962
Type: Three grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 1-August 2	0.29	12
August 5-August 30	0.19	14
September 2-September 27	0.19	17
September 30-November 1	0.12	15
November 4-November 29	0.04	13
December 2-December 27	0.10	14
1964		
December 30-January 31	0.08	12
February 3-February 28	0.08	11

RMN Station 6: Colorado River near Fruita, Colorado
Started: April 16, 1962
Type: Three grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 1-August 2	0.30	12
August 5-August 30	0.24	12
September 2-September 27	0.36	14
September 30-November 1	0.33	14
November 4-November 29	0.18	11
December 2-December 27	0.21	13
1964		
December 30-January 31	0.18	10
February 3-February 28	0.19	9.2

RMN Station 9: Colorado River above Moab, Utah
Started: December 11, 1961
Type: Three grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 1-August 3	0.48	14
August 5-August 30	0.40	17
September 2-September 27	0.25	14
September 30-November 1	0.33	14
November 4-November 29	0.28	11
December 2-December 27	0.29	16
1964		
December 30-January 31	0.50	12
February 3-February 28	0.35	11

RMN Station 10: Colorado River below Moab, Utah
Started: December 11, 1961
Type: Three grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
July 1-August 3	0.51	12
August 5-August 30	0.36	17
September 2-September 27	0.26	14
September 30-November 1	0.29	16
November 4-November 29	0.24	12
December 2-December 27	0.28	16
1964		
December 30-January 31	0.68	12
February 3-February 28	0.34	13

RMN Station 11: Animas River at Durango, Colorado
Started: July 17, 1961
Type: Three grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 1-August 3	0.11	1.5
August 5-August 30	0.06	0.5
September 4-September 27	0.04	1.0
September 30-November 1	0.05	0.8
November 4-November 27	0.04	1.1
December 2-December 27	0.04	1.5
1964		
January 3-January 31	0.04	1.0
February 3-February 7	0.06	1.3
February 14-February 21	0.04	1.0
February 24-February 28	0.07	0.9

RMN Station 12: Animas River at Colorado-New Mexico State Line
Started: January 19, 1961
Type: Automatic Pump-Timer

Date	Radium-226 µµc/liter	Uranium µg/liter
1963		
July 9-July 29	0.23	2.3
August 5-September 3	0.15	2.2
September 3-September 23	0.11	1.8
September 30-October 28	0.10	2.4
November 4-November 26	0.13	4.0
December 2-December 23	0.14	4.4
1964		
December 27-February 1	0.11	2.4
February 1-February 5	0.16	2.5
February 21-February 28	0.16	2.5

RMN Station 13: San Juan River above Farmington, New Mexico
Started: July 9, 1962
Type: Automatic Pump-Timer

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 1-July 29	0.11	1.7
August 5-August 12	0.08	4.5
September 3-September 23	0.06	2.3
September 23-October 28	0.04	1.1
November 4-November 26	0.06	0
December 2-December 23	0.03	2.6
1964		
December 30-January 27	0.03	1.2
February 3-February 24	0.03	1.3

RMN Station 14: San Juan River at Fruitland, New Mexico
Started: August 1, 1962
Type: One grab sample per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 1-July 22	0.15	2.7
August 5-August 26	0.11	4.2
September 3-September 23	0.09	2.6
September 30-October 28	0.06	2.9
October 28-November 26	0.04	2.2
December 2-December 23	0.05	3.6
1964		
December 30-January 27	0.05	2.5
February 3-February 24	0.05	3.0

RMN Station 14S: San Juan River below Shiprock, New Mexico
Started: August 7, 1962
Type: Automatic Pump-Timer

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 2-July 8	0.26	17
July 8-July 10	0.28	26
July 10-July 15	0.18	22
July 15-July 22	0.20	15
July 29-August 5	0.28	28
August 5-August 12	0.19	16
August 12-August 19	0.25	13
August 26-August 30	0.11	9.9
September 3-September 6	0.09	8.8
September 9-September 13	0.14	16
September 16-September 20	0.12	28
September 23-September 27	0.06	8.2
September 30-October 4	0.08	15
October 7-October 11	0.11	30
October 14-October 18	0.05	15
October 21-October 25	0.08	10
October 28-November 1	0.08	22
November 4-November 8	0.09	20
November 12-November 16	0.04	21
November 18-November 22	0.09	18
November 22-December 2	0.05	3.0
December 2-December 9	0.06	6.3
December 11-December 16	0.04	18
December 18-December 20	0.04	17
December 23-December 30	0.06	15
1964		
December 30-January 16	0.09	12
January 16-January 20	0.08	21
January 20-January 24	0.08	13
January 27-January 31	0.05	12
February 3-February 5	0.21*	3.4
February 10-February 12	0.05	3.5
February 24-February 28	0.05	3.2

* To be checked

RMN Station 15: San Juan River above Mexican Hat, Utah
Started: December 11, 1961
Type: Six daily grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 1-August 3	0.20	11
August 5-August 31	0.26	12
September 2-September 28	0.13	6.3
September 30-November 2	0.13	7.6
November 4-November 30	0.06	4.5
December 2-December 27	0.08	6.8
1964		
December 30-February 1	0.06	5.5
February 3-February 29	0.06	6.2

RMN Station 16: San Juan River below Mexican Hat, Utah
Started: December 11, 1961
Type: Six daily grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 1-July 6	0.25	11
July 8-July 13	0.26	7.6
July 15-July 20	0.11	14
July 22-July 27	0.84	0.8
July 29-August 3	0.40	13
August 5-August 10	0.21	11
August 12-August 17	0.19	7.6
August 19-August 24	0.18	14
August 26-August 31	0.20	6.2
September 2-September 7	0.16	8.7
September 9-September 14	0.12	8.0
September 16-September 21	0.14	17
September 23-September 28	0.14	13
September 30-October 5	0.08	12
October 7-October 12	0.06	14
October 14-October 20	0.13	9.1
October 21-October 26	0.11	7.9
October 28-November 2	0.09	6.6
November 4-November 9	0.06	4.4
November 11-November 16	0.04	8.1
November 18-November 23	0.05	5.2
November 24-November 30	0.03	9.3
December 2-December 7	0.09	7.4
December 9-December 14	0.06	7.8
December 16-December 21	0.10	8.1
December 23-December 28	0.04	5.9
1964		
December 30-January 4	0.06	5.5
January 6-January 11	0.04	4.9
January 13-January 18	0.08	11
January 20-January 25	0.06	7.9
January 27-February 1	0.06	8.4
February 3-February 8	0.16	14
February 10-February 15	0.08	6.7
February 17-February 22	0.13	11
February 24-February 27	0.16	15

RMN Station 17: San Miguel River above Naturita, Colorado
Started: October 28, 1961
Type: Automatic Pump-Timer

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
June 30-August 4	0.08	2.3
August 4-August 31	0.06	0.8
August 31-September 29	0.04	1.6
September 29-November 3	0.04	3.9
November 3-November 30	0.03	0.6
November 30-December 29	0.03	2.0
1964		
December 29-February 2	0.04	1.2
February 2-February 28	0.04	1.0

RMN Station 18: San Miguel River above Uravan, Colorado
Started: October 27, 1961
Type: Automatic Pump-Timer

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
June 30-August 4	0.11	7.7
August 4-August 31	0.16	3.8
August 31-September 29	0.14	3.1
September 29-November 3	0.19	6.0
November 3-November 30	0.10	1.9
November 30-December 29	0.13	5.7
1964		
December 29-February 2	0.11	3.2
February 2-February 28	0.09	3.9

RMN Station 20: San Miguel River below Uravan, Colorado
Started: October 9, 1961
Type: Automatic Pump-Timer

Date	Radium-226 uuc/liter	Uranium ug/liter
1963		
June 30-July 7	1.80	22
July 7-July 12	0.44	8.2
July 12-July 21	1.26	30
July 21-July 27	0.28	1.6
July 27-August 4	0.31	22
August 4-August 11	0.20	17
August 11-August 18	1.20	42
August 18-August 25	1.29	57
August 25-August 31	0.83	59
August 31-September 8	1.46	27
September 8-September 14	0.90	26
September 14-September 22	0.38	23
September 22-September 29	2.16	34
September 29-October 6	2.15	78
October 6-October 13	1.36	56
October 13-October 20	1.95	31
October 20-October 27	1.88	6.4
October 27-November 3	2.08	5.0
November 3-November 10	1.75	2.5
November 10-November 17	2.21	29
November 17-November 24	1.59	39
November 24-November 30	0.94	3.7
November 30-December 8	0.58	6.6
December 8-December 15	5.58	62
December 15-December 22	3.24	18
December 22-December 24	3.38	2.4
1964		
December 28-January 5	3.28	24
January 5-January 12	1.76	19
January 12-January 19	1.31	20
January 19-January 26	0.94	37
January 26-February 2	1.55	41
February 2-February 9	0.80	32
February 9-February 16	0.81	46
February 16-February 22	0.80	60
February 22-February 28	2.01	82

RMN Station 21: Dolores River at Bedrock, Colorado
Started: October 30, 1961
Type: Three grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 1-August 2	0.48	11
August 6-August 30	0.93	31
September 2-September 28	0.58	28
September 30-November 1	0.49	35
November 4-November 30	0.41	14
December 2-December 27	0.55	19
1964		
December 30-January 31	0.64	16
February 3-February 28	1.40	16

RMN Station 24: Gunnison River above Gunnison, Colorado
Started: December 11, 1961
Type: Three grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 1-August 2	0.05	1.0
August 6-August 30	0.05	0
September 3-September 27	0.04	0.6
September 30-November 1	0.03	1.1
November 4-November 30	0.06	0.1
December 2-December 28	0.06	2.5
1964		
December 30-January 31	0.05	1.3
February 3-February 28	0.11*	1.3

* To be checked

RMN Station 25: Gunnison River below confluence of Tomichi Creek, Gunnison, Colorado
Started: December 5, 1961
Type: Three grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 1-August 2	0.05	0.6
August 6-August 30	0.04	0.7
September 3-September 27	0.03	1.5
September 30-November 1	0.03	1.6
November 4-November 29	0.05	1.3
December 2-December 28	0.04	3.6
1964		
December 31-January 31	0.03	2.7
February 3-February 28	0.03	2.9

RMN Station 26: Dolores River at Gateway, Colorado
Started: December 26, 1961
Type: Three grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 2-August 2	1.16	15
August 5-August 30	0.51	25
September 2-September 27	1.34	29
September 30-November 2	1.75	16
November 5-November 29	2.23	22
December 2-December 26	1.70	35
1964		
December 30-February 1	2.20	28
February 4-February 28	1.80	

RMN Station 28: Yampa River below Maybell, Colorado
Started: July 2, 1962
Type: Three grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 1-August 2	0.14	4.0
August 5-August 30	0.13	3.1
September 2-September 27	0.08	1.8
September 30-November 1	0.08	2.5
November 4-November 29	0.09	0.6
December 2-December 27	0.10	2.8
1964		
December 30-January 31	0.09	0.8
February 3-February 28	0.08	1.9

RMN Station 29: Green River below Green River City, Utah
Started: July 16, 1962
Type: Three grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
June 3-June 30	0.10	2.6
July 1-August 2	0.11	4.8
August 5-August 30	0.11	5.5
September 2-September 27	0.15	6.1
September 30-November 1	0.13	7.4
November 4-November 27	0.09	5.4
December 2-December 27	0.06	5.0
1964		
December 30-January 31	0.06	5.0
February 3-February 28	0.09	4.1

RMN Station 30: Colorado River at U. S.-Mexican Border
Started: June 19, 1961
Type: Five grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 2-August 2	0.23	7.2
August 5-August 30	0.25	7.9
September 2-September 27	0.20	7.6
September 30-November 1	0.14	6.7
November 4-November 29	0.11	5.9
December 2-December 27	0.11	7.1
1964		
December 30-January 31	0.13	7.1
February 3-February 28	0.11	7.3

RMN Station 31: Colorado River at Page, Arizona
Started: May 1, 1963
Type: 300 cc. composite per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 1-July 31	0.29	9.2
August 1-August 31	0.25	7.4
September 1-September 30	0.16*	7.1
October 7-October 28	0.19	7.9
November 4-November 25	0.18	8.6
December 2-December 30	0.25	8.6
1964		
January 1-January 31	0.25	8.4
February 3-February 24	0.34	10

* To be checked

RMN Station 32: Colorado River at (Lake Mead) Boulder City, Nevada
Started: March 11, 1963
Type: Three grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
July 1-August 2	0.31	7.4
August 5-August 30	0.31	7.0
September 2-September 27	0.31	7.9
September 30-November 1	0.34	8.6
November 4-November 29	0.30	5.6
December 4-December 27	0.28	8.1
1964		
December 30-January 31	0.31	7.4
February 3-February 28	0.50*	8.6

* To be checked

RMN Station 33: Colorado River at Metropolitan Water District Intake, Lake Havasu, California-Arizona
Started: January 7, 1963
Type: Three grab samples per week

Date	Radium-226 μμc/liter	Uranium μg/liter
1963		
April 29-May 24	0.36	8.1
June 3-June 29	0.36	8.2
July 1-August 1	0.34	8.8
August 5-August 30	0.34	6.6
September 2-September 27	0.31	7.2
October 1-October 30	0.34	6.2
November 4-November 29	0.36	5.9
December 2-December 27	0.39	7.4
1964		
January 3-January 31	0.33	7.7
February 2-February 29	0.31	8.7